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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,795	03/23/2005	Kenzo Ishibashi	92478-1500	9154

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EXAMINER	
BIBBINS, LATANYA	

ART UNIT	PAPER NUMBER
2627	

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12/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,795	ISHIBASHI ET AL.	
	Examiner	Art Unit	
	LaTanya Bibbins	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,9,11 and 12* is/are rejected.

7)☒ Claim(s) *7 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 23, 2007 has been entered.

2. In the remarks filed on October 23, 2007, Applicant amended claims 1-3 and 5-9, added claims 10-12, and submitted arguments for allowability of pending claims 1-12.

Response to Arguments

3. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tobita et al. (US PGPub Number 2003/0053385 A1) in view of Matoba et al. (US Patent Number 5,311,490).

Regarding claim 1, Tobita discloses a tracking control apparatus for an optical disc which has wobble grooves as tracks, comprising:

a signal detection unit including

an optical head to transmit a push-pull signal from an optical spot focused on the optical disc (Figure 27 element 17 and the discussion in paragraph [0107]),

a low pass filter connected to the optical head, the low-pass filter receiving the push-pull signal, removing a wobble signal from the push-pull signal, and outputting a tracking error signal (Figure 27 element 43 and the discussion in paragraphs [0108] and [0109]), and

a band-pass filter of a wobble signal band connected to the optical head, the band-pass filter receiving the push-pull signal and allowing the wobble signal from the push-pull signal to pass through (see the discussion in paragraphs [0115], [0118], and [0215]); and

a polarity judgment unit judging, by a polarity judgment, that the optical spot is on a land if a wobble signal amplitude value is equal to or lower than a predetermined value in vicinity of a zero-cross point (see the discussion in paragraphs [0214]-[0218]).

Tobita fails to disclose but Matoba et al. discloses a speed calculation unit calculating, in a tracking-off state, a relative moving speed between the optical spot and

the tracks, from (i) a zero-cross point cycle in the tracking error signal and (ii) a track pitch (see Figure 1 element 77 and the discussion in column 8 lines 31-41) and

a moving direction judgment unit, when the relative moving speed is within a predetermined range and the polarity judgment unit has judged that the optical spot is on a land, judging a moving direction of the optical spot relative to the tracks, from a rise/decay direction of the tracking error signal (see the discussion in column 8 lines 3-30 regarding the low speed direction discrimination circuit).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the speed calculation and moving direction judgement of Matoba into the tracking control of Tobita. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to correctly determine the direction of movement of the light spot during disc access (column 9 lines 3-10) and to accurately move the optical head to the specified track (column 4 lines 40 and 41).

Regarding claim 2, Matoba further discloses

a control unit performing a tracking lead-in by reducing the relative moving speed, based on the relative moving speed calculated by the speed calculation unit and the moving direction (column 9 lines 52-63), and

the moving direction judgment unit judges whether the optical spot is moving from an inner circumference track toward an outer circumference track or from the outer circumference track toward the inner circumference track, according to whether a

differential coefficient of the tracking error signal is positive or negative (column 8 lines 3-17).

Claim 8 is drawn to a tracking control method of using the corresponding apparatus claimed in claim 1. Therefore method claim 8 corresponds to apparatus claim 1 and is rejected for the same reasons of obviousness as used above.

Claim 9 is drawn to a computer readable medium encoded with a tracking control program corresponding to the method claimed in claim 8. Therefore computer readable medium claim 9 corresponds to method claim 8, and is rejected for the same reasons of obviousness as used above.

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tobita et al. (US PGPub Number 2003/0053385 A1) and Matoba et al. (US Patent Number 5,311,490), as applied to claim 2 above, and further in view of Kasai et al. (US Patent Number 4,866,687).

Regarding claim 3, the combination of Tobita and Matoba do not disclose but Kasai discloses

an eccentricity storing sub-unit calculating an amount of eccentricity per rotation of the optical disc, from a moving speed and a moving direction that are calculated and judged by the speed calculation unit and the moving direction judgment unit based on the tracking error signal corresponding to one-half or more rotation, of the optical disc,

and to store data of the calculated amount of eccentricity (*cross track control circuit, eccentricity per revolution,* Col. 12, Lines 21 -42);

a following operation sub-unit causing the optical spot to follow a specific track among a plurality of eccentricity tracks crossing the optical spot, with timing when the specific track passes the optical spot, based on the amount of eccentricity stored in the eccentricity storing sub-unit (*timing signal is indicated to the servo control circuit,* Col. 12, Lines 43-53); and

a first lead-in sub-unit leading a tracking into the specific track or a track in vicinity of the specific track while the optical spot is following the specific track (*coarse actuator,* Col. 9, .Lines 6-18; *target track,* Col. 8, Lines 17-22).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to modify the teachings of Tobita and Matoba and have an eccentricity storing sub-unit operable to calculate an amount of eccentricity per rotation of the optical disc, from a moving speed and a moving direction that are calculated and judged by the speed calculation unit and the moving direction judgment unit based on the tracking error signal corresponding to one-half or more rotation of the optical disc, and to store data of the calculated amount of eccentricity, a following operation subunit operable to cause the optical spot to follow a specific track among a plurality of eccentricity tracks crossing the optical spot, with timing when the specific track passes the optical spot, based on the amount of eccentricity stored in the eccentricity storing sub-unit, and a first lead-in sub-unit operable to lead a tracking into the specific track or a track in vicinity of the specific track while the optical spot is following the specific track,

as disclosed by Kasai. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to correctly access a target track.

Regarding claim 4, Kasai further discloses that the specific track is approximately at a center of the plurality of eccentricity tracks (Col. 5, Lines 55-60; Col. 6, Lines 14-20).

Regarding claim 5, the combination of Tobita and Matoba do not disclose but Kasai discloses

an eccentricity storing sub-unit operable to calculate an amount of eccentricity per rotation of the optical disc, from a moving speed and a moving direction that are calculated and judged by the speed calculation unit and the moving direction judgment unit based on the tracking error signal corresponding to one-half or more rotation of the optical disc, and to store data of the calculated amount of eccentricity (*cross track control circuit, eccentricity per revolution,* Col. 12, Lines 21-42);

a second following operation sub-unit operable to cause the optical spot to follow a track that is approximately at a center of the plurality of eccentricity tracks; .based on the amount of eccentricity stored in the eccentricity storing sub-unit (*timing signal is indicated to the servo control circuit,* Col. 12, Lines 43-53; *fine actuator*, Col. 9, Lines 6-18); and

a second lead-in sub-unit operable to, with given timing, lead a tracking into the track approximately at the center of the plurality of eccentricity tracks (*fine actuator,* Col. 9, Lines 6-18).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to modify the teachings of Tobita and Matoba and have an eccentricity storing sub-unit operable to calculate an amount of eccentricity per rotation of the optical disc, from a moving speed and a moving direction that are calculated and judged by the speed calculation unit and the moving direction judgment unit based on the tracking error signal corresponding to one-half or more rotation of the optical disc and to store data of the calculated amount of eccentricity, a second following operation sub-unit operable to cause the optical spot to follow a track that is approximately at a center of the plurality of eccentricity tracks, based on the amount of eccentricity stored in the eccentricity storing sub-unit, and a second lead-in sub-unit operable to, with given timing, lead a tracking into the track approximately at the center of the plurality of eccentricity tracks, as disclosed by Kasai. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to correctly access a target track.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tobita et al. (US PGPub Number 2003/0053385 A1) and Matoba et al. (US Patent Number 5,311,490) as applied to claim 2 above, and further in view of Miyazaki et al. (US Patent Number 7,023,777 B2).

Regarding claim 11, the combination of Tobita and Matoba disclose the tracking control apparatus of claim 1, but fail to disclose that the signal detection unit further

includes a detector connected to the band-pass filter to obtain an amplitude component from the wobble signal.

Miyazaki, however, discloses

a detector connected to the band-pass filter to obtain an amplitude component from the wobble signal (Figure 1 element 8 and the discussion in column 10 line 54-column 11 line 20) .

Regarding claim 12, Miyazaki discloses

a low-pass filter connected to the detector to remove a partial amplitude variation from the amplitude component and output the wobble signal amplitude value.(Figure 1 element 11 and the discussion in column 12 line 44-column 13 line 49)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate both the wobble amplitude detector and the low pass filter as disclosed by Miyazaki into the teachings of Tobita and Matoba. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to detect a servo abnormality and to accurately provide servo control (as suggested by Miyazaki in column 10 lines 42-53).

Allowable Subject Matter

8. **Claims 7 and 10** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 7 and 10, none of the references of record, alone or in combination suggest or fairly teach a tracking control apparatus including all of the limitations of claim 2, wherein

the polarity judgment unit includes at least one of

a first judgment sub-unit judging that the optical spot is on a groove if a RF signal amplitude value from the optical disc is equal to or higher than a predetermined value;

a second judgment sub-unit judging whether the optical spot is on a groove or a land based on total light quantity signals from the groove and the land of the optical disc if there is a difference between the total light quantity signals; and

a third judgment sub-unit judging whether the optical spot is on a groove or a land based on total light quantity signals from the groove and the land of the optical disc if there is a difference between the total light quantity signals, excluding portions of the optical disc for which the RF signal amplitude value from the optical disc is equal to or higher than the predetermined value, wherein

the moving direction judgment unit further judges the moving direction of the optical spot relative to the tracks from the rise/decay direction of the tracking error signal if any of the first to third judgment sub-units judges by a polarity judgment whether the optical spot is on a groove or a land.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaTanya Bibbins whose telephone number is (571) 270-1125. The examiner can normally be reached on Monday through Friday 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LaTanya Bibbins

THANG V. TRAN
PRIMARY EXAMINER